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Thermophysical Properties of Working Mediums and Their Application in Thermodynamic Cycles

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Deadline for manuscript submissions:
closed (15 June 2023)

Message from the Guest Editors

Topics include, but are not limited to:

(1) Supplementing the thermophysical property data of fluids, especially for mixtures of working media. The approaches include both laboratory measurements and computer experiments (from quantum chemistry or from molecular simulations based on forced fields).

(2) Modeling the thermophysical properties from ML perspectives. Supervised learning algorithms (support vector machine, decision tree, nearest neighbors, artificial neural network, etc.) are the most commonly used methods in this field, while incorporating them with physical property knowledge (e.g., chemical structures, group contribution method, corresponding states principle) to develop hybrid models is the preferred option. Moreover, papers using techniques from unsupervised learning and reinforcement learning for tasks such as data preprocessing, parameter optimization are also encouraged.

(3) Exploring and screening potential working media based on ML. For example, selecting the optimal working medium based on the ML-predicted thermophysical data, so as to ensure the thermal economy of the power system under the specific working condition.

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Message from the Editor-in-Chief

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